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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,865	12/26/2001	Edward Litwinski	38190.234775	4871

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EXAMINER
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STONER, KILEY SHAWN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/035,865

Applicant(s)

LITWINSKI, EDWARD

Examiner

Kiley Stoner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-33 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-12 is/are rejected.
- 7) ☒ Claim(s) 7, 8 and 13-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Waldron et al. (6,168,067) IDS. Waldron et al. teaches a first structural member; a second structural member positioned adjacent to said first structural member such that said first and second structural members define an interface therebetween; and at least one friction stir weld joint joining said first structural member to said second structural member at least partially along said interface (figure 3), said first and second structural members and said friction stir weld joint being solution heat treated at a first predetermined temperature schedule and precipitation heat treated at a second predetermined temperature schedule and wherein said friction stir weld joint comprises a refined grain structure having grain size of less than about 5 microns (figure 2c; column 1, line 66-column 2, line 14); said first and second structural members comprise

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dissimilar materials (column 11, lines 27-56); at least one of said first and second structural members is formed from materials selected from the group consisting of aluminum, aluminum alloys, titanium, and titanium alloys (column 3, line 48-column 4, line 5). Since Waldron et al. is performing the same process as the applicant it is inherent the refined grain structure will have a grain size of less than about 5 microns.

Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Forrest et al. (6,398,883). Forrest et al. teaches a first structural member; a second structural member positioned adjacent to said first structural member such that said first and second structural members define an interface therebetween; and at least one friction stir weld joint joining said first structural member to said second structural member at least partially along said interface (figure 6 and column 3, lines 35-50), said first and second structural members and said friction stir weld joint being solution heat treated at a first predetermined temperature schedule and precipitation heat treated at a second predetermined temperature schedule and wherein said friction stir weld joint comprises a refined grain structure having grain size of less than about 5 microns (column 1, lines 39-57; column 3, lines 33-40; and column 6, lines 29-48 ); at least one of said first and second structural members is formed from materials selected from the group consisting of aluminum, aluminum alloys, titanium, and titanium alloys (column 3, lines 35-50). Since Forrest et al. is performing the same process as the applicant it is inherent the refined grain structure will have a grain size of less than about 5 microns.

Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Chakrabarti et al. (US 2002/0121319A1). Chakrabarti et al. teaches a first structural member; a second structural member positioned adjacent to said first structural member such that said first and second structural members define an interface therebetween; and at least one friction stir weld joint joining said first structural member to said second structural member at least partially along said interface (figure 6 and column 3, lines 35-50), said first and second structural members and said friction stir weld joint being solution heat treated at a first predetermined temperature schedule and precipitation heat treated at a second predetermined temperature schedule (paragraphs [0105-0106] and claims 1, 2 and 27-28); at least one of said first and second structural members is formed from materials selected from the group consisting of aluminum, aluminum alloys, titanium, and titanium alloys (abstract). Since Chakrabarti et al. is performing the same process as the applicant it is inherent the refined grain structure will have a grain size of less than about 5 microns.

Claims 4-6 and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson (6,554,175 B1). The intended use of the instantly claimed apparatus is noted, however, the intended use does not patentably distinguish said claimed apparatus over the prior art. Thompson teaches a friction stir welding tool in rotatable communication with the spindle; and at least one heater adapted to thermally communicate with said friction stir welding tool to thereby heat said tool (column 16, lines 44-55). It is inherent that the electric heating means of Thompson would have

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been contained within a cavity of the FSW tool, since the heating system of Thompson is used when welding at a very slow relative rotation with respect to the shoulder. The pin could only be heated during rotation from frictional heat and an internal heat source. Resistance heating coils are electrically heated, so Thompson anticipates using resistance heating means to heat the tool.

Thompson also teaches a machine having a rotatable spindle; a friction stir welding tool in rotatable communication with said spindle; and at least one heater adapted to thermally communicate with said friction stir welding tool to thereby heat said tool (column 16, lines 44-55). Since Thompson is electrically heating only the pin and the shoulder, so it is inherent that at least one heater is structured so as to be electrically insulated from the at least one structural member. The electrical heater of Thompson would inherently transfer heat through conduction.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4-6 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Larsson (WO 98/51441). The intended use of the instantly claimed apparatus is noted, however, the intended use does not patentably distinguish said claimed apparatus over the prior art. Larsson teaches a friction stir welding tool in rotatable communication with the spindle; and at least one heater adapted to thermally communicate with said friction stir welding tool to thereby heat said tool (abstract; Figure 2; page 9). It is inherent that the electric heating means of Larsson would have been contained within a cavity of the FSW tool, since the heating system of Larsson is used for heating the body and pin.

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The pin could only be heated during welding from frictional heat and an internal heat source. In addition the heat carrying medium would have to be contained within the cavity 11, in order to heat the body and the pin through conduction. Because the heat carrying medium is within the cavity, it would have to be heated within the cavity.

Resistance heating coils are electrically heated, so Larsson anticipates using resistance heating means to heat the tool.

Larsson also teaches a machine having a rotatable spindle; a friction stir welding tool in rotatable communication with said spindle; and at least one heater adapted to thermally communicate with said friction stir welding tool to thereby heat said tool (abstract; Figure 2; page 9). Since Larsson is electrically heating only the body and the pin it is inherent that at least one heater is structured so as to be electrically insulated from the at least one structural member. The electrical heater of Larsson would inherently transfer heat through conduction.

### **Allowable Subject Matter**

Claims 16- 33 are allowed.

Claims 7-8 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### **Conclusion**

The prior art of record that is cited as of interest is presented on the form-892.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiley Stoner whose telephone number is (703) 305-0723. The examiner can normally be reached on Monday-Thursday (7:30 a.m. to 6:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on Monday-Friday. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Kiley Stoner A.U. 1725

*Kiley Stoner* 8-18-03